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DEPARTMENT OF CONSUMER & INDUSTRY SERVICES
LANSING

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MEMORANDUM

DATE: February 24, 2003

TO: Long Term Care Facilities

FROM: MDCIS/Clinical Advisory Panel
Quality Improvement Nurse Consultants

RE: Process Guideline for the Prevention and Management of
Pressure Ulcers

Overview

Best clinical practice is only worthwhile to the extent that we use it to guide care for our residents.

Collaboratively, we are striving to improve prevention and management of pressure ulcers for nursing home residents in Michigan. The purpose of the Guide is to clarify how to apply the **Documentation Checklist: Process Guideline for the Prevention and Management of Pressure Ulcers**. Electronic copies are available for reprint at www.michigan.gov. Select State Websites, followed by Family, Health & Safety; under Featured Services, select Quality Improvement Nurse Consultants and in the far right margin click on Best Practices.

This optional “best practice” tool will be further explained to you at the Spring 2003 Joint Provider/Surveyor Training on March 11, 2003. Effective date for usage of the tool will be March 31, 2003. Both facilities and surveyors will have the opportunity to use the Documentation Checklist when resident pressure ulcers are of concern. Facilities will be accorded the opportunity to demonstrate that they have followed the steps in this guideline, as evidence to support an appropriate care process related to the prevention and management of pressure ulcers.

A workgroup including doctors, nurses and dietitians with experience in geriatrics and nursing home care discussed pressure ulcers in depth. They used generally accepted, current references about pressure ulcers to help them prepare the Process Guideline. The Documentation Checklist contains a series of steps related to preventing and managing pressure ulcers.

Best clinical practice information helps each facility provide the best possible care throughout the year. Along with information in the Federal OBRA regulations, our surveyors will use these

Process Guidelines to review how your facility is managing pressure ulcers. We encourage you to examine your process to prevent and manage resident pressure ulcers and to consider the application of the following information.

The Basic Care Process

The management of all conditions and problems in a nursing home should follow these basic steps:

Assessment/recognition. The purpose of this step is to provide a rational basis for deciding whether there is a need, risk, or problem and what to do about it. The facility's staff and practitioners collect relevant information about the resident (history, signs and symptoms, known medical conditions, personal habits and patterns, etc.) and then a) evaluate and organize that information to identify whether the individual has a specific need, condition, or problem; and b) describe and define the nature (onset, duration, frequency, etc.) of the risk, condition, or problem.

Diagnosis/cause identification. The facility's staff and practitioners attempt to identify causes of a condition or problem, or explain why causes cannot or should not be identified.

Treatment/management. The facility's staff and practitioners use the above information to decide how to manage a resident's condition, symptom, or situation. Where causes may be identifiable and correctable, they seek and address them or explain why they could not or should not have done so.

Monitoring. The facility's staff and practitioners evaluate the individual's progress over time in relation to a risk, need, problem, condition, or symptom, consider the effectiveness of interventions, and make a systematic determination about what to do next.

PRESSURE ULCER PREVENTION AND MANAGEMENT
February 24, 2003

CARE PROCESS STEP	EXPECTATIONS	RATIONALE
ASSESSMENT / PROBLEM RECOGNITION		
1. Did the staff inspect and document the resident's skin condition upon admission?	<ul style="list-style-type: none"> - Facility staff should systematically assess the skin condition of all residents. - Staff should identify and document the presence of any pressure ulcers and other skin breakdown, as well as factors that influence the risk of developing or the potential for healing a pressure ulcer. - Facility staff should systematically inspect and document a resident's skin condition from head to foot within 24 hours of admission, including the presence of pressure ulcers of any stage. <ul style="list-style-type: none"> - After reviewing the skin condition, staff should distinguish pressure ulcers from other skin lesions, and document the distinction. - Refer to Table 3, AMDA Pressure Ulcer CPG (attached) 	<ul style="list-style-type: none"> - The skin must be examined thoroughly in order to identify the presence of pressure ulcers, especially early stages of damage, and to institute appropriate interventions. - Additional information must be collected in order to identify and careplan pertinent issues. - The Braden scale is the most widely tested and evidence-based tool at present. Refer to Appendix 2.
2. Did the staff evaluate the resident's skin condition periodically and identify changes?	<ul style="list-style-type: none"> - Staff should inspect the resident's skin at least approximately weekly for the presence of pressure ulcers or other skin breakdown. - Staff should inspect and document skin condition <i>within 24 hours</i> of arrival or return from another facility. 	<ul style="list-style-type: none"> - Many risk factors persist indefinitely in frail and chronically ill residents. - Subsequent changes in a resident's condition may increase his/her potential for skin breakdown.
<u>Risk Review</u> 3. Both initially and periodically, did the staff identify factors that can influence the risk of developing or healing a pressure ulcer?	<ul style="list-style-type: none"> - Staff should look for specific physical and functional factors associated with the risk of developing a pressure ulcer or known to influence the healing of an existing pressure ulcer. - Staff should assess each resident's risk factors and use the assessment to develop a plan to minimize each of those risks. - Refer to Table 1, AMDA Pressure Ulcer CPG (attached) Table 2, AMDA Pressure Ulcer CPG (attached) - Risk Factor Summary, Clin Ger Med 13(3):430, 1997. 	<ul style="list-style-type: none"> - Factors associated with increased risk of developing a pressure ulcer and those that inhibit healing of an existing pressure ulcer have been identified. - Many risk factors can be addressed at least partially. For example, maintaining the head of the bed at the lowest degree of elevation consistent with resident's medical condition is outlined in the Association for Health Care Research & Quality (AHRQ) CPG. The use of appropriate positioning devices and foam padding help to alleviate shear. Staff and resident utilization of lifting devices such as a trapeze or draw sheets minimize

CARE PROCESS STEP	EXPECTATIONS	RATIONALE
		friction. Limiting skin exposure to moisture from incontinence, perspiration or wound drainage with bowel/bladder training or materials that absorb moisture may diminish skin maceration and wound infection.
4. Did the staff inspect the resident's skin condition when he/she acquired a new risk factor for developing a pressure ulcer?	- Staff should reevaluate a resident's skin when he/she develops a new risk factor known to be associated with an increased risk of skin breakdown. A serious decline in level of consciousness, for example, would necessitate a skin check within 24 hours, whereas resident weight loss of 5 pounds (from the previous month) assessed 2 days after the last skin check could imply further skin assessment at the next scheduled weekly check, and prompt evaluation/care planning for weight loss.	- New risk factors may become apparent at any time, especially within the first several days after admission. - Any changes in a resident's condition may increase the potential for skin breakdown.
<u>Complications</u> 5. Did the staff consider complications related to an existing pressure ulcer?	- Staff should seek and identify physical, functional, and psychological consequences related to an existing pressure ulcer; for example, pain, cellulitis (soft tissue infection around the ulcer), osteomyelitis, or social isolation.	- Pressure ulcers may have associated physical, functional, and psychological complications, which may be managed effectively once they are identified. - Open pressure ulcers usually are colonized, but may not be infected.
<u>Description of existing pressure ulcers</u> 6. Did the staff describe the characteristics of existing ulcers?	- Staff should identify factors that indicate pressure ulcer healing or deterioration. - Staff should describe and document a pressure ulcer's key characteristics including size, location, depth and stage, the presence or absence of necrosis and slough, tunneling or sinus tract(s), and exudate. Staff also should comment on the condition of wound bed including evidence of healing such as granulation (where visible), the presence of eschar, and the status of surrounding skin.	- Assessment of these parameters over time is key to identifying the progress of pressure ulcer healing or deterioration. - The status of these parameters determine appropriate pressure ulcer treatment.
DIAGNOSIS / CAUSE IDENTIFICATION		
<u>Categorization</u> 7. Did the facility provide evidence to conclude that an ulcer was not pressure-related?	- Staff should document findings that support the conclusion that an ulcer is not pressure-related (arterial ulcer, venous ulcer, breakdown related to infectious or autoimmune disorder, etc.). - A physician or other health care practitioner should also evaluate the evidence. For example, a progress note should indicate that there	- Many conditions can cause skin breakdown. - Different kinds of ulcers often have defining characteristics that help determine their etiology.

CARE PROCESS STEP	EXPECTATIONS	RATIONALE
	was discussion with the physician to concur that an ulcer was not from pressure; but rather from other cause(s).	
8. Did the facility consider care-related process problems that may influence or contribute to the development or healing of a pressure ulcer?	<ul style="list-style-type: none"> - The staff should look for gaps in the plan or delivery of care related to a specific resident that could affect acquiring or impede healing of a pressure ulcer. 	<ul style="list-style-type: none"> - For example, residents who cannot relieve pressure independently or who cannot address other relevant risk factors require others to provide essential elements of care. A facility policy for systematic turning and repositioning of the resident should be used, along with indications of resident's available turning surfaces.
TREATMENT / PROBLEM MANAGEMENT		
9. Did the staff consistently implement the interventions identified in physician orders and the care plan?	<ul style="list-style-type: none"> - Staff should use an organized approach to manage pressure ulcers and pressure ulcer risk factors. Related procedures and protocols should be consistent with standard techniques and approaches. - Routine preventive interventions are indicated for all residents with pressure ulcers or pressure ulcer risks. - Refer to: Table 5, AMDA Pressure Ulcer CPG (attached) Appendix 1, AMDA Pressure Ulcer Companion (attached) 	<ul style="list-style-type: none"> - Principles of care to prevent and treat pressure ulcers have been identified. For example, ulcer healing is delayed with the presence of necrotic tissue/slough. Cleanse ulcers using sterile normal saline solution following techniques from AHRQ Guidelines. Remove non-viable tissue with a debridement method based on ulcer characteristics and resident comfort. If the ulcer has increased odor or excessive debris, either increase the frequency of cleansing or consider a different form of debridement. Generally, a heel ulcer with eschar is not debrided, unless evidence of infection is present. Cover and protect the wound and surrounding skin.
10. Were the facility's interventions consistent with the resident's needs, risk factors, related conditions, goals, values and wishes?	<ul style="list-style-type: none"> - Staff should establish realistic goals for ulcer management at or near the time of assessment. - Staff should be able to explain the rationale for their interventions if the ulcer is not healing as anticipated. - Staff should have a basis for each element of the care of a resident's pressure ulcer, or explain why treatment differed from relevant protocols. 	<ul style="list-style-type: none"> - Pressure ulcers should show progress towards healing within 2 to 4 weeks. - A resident's overall condition, including active medical conditions and complications, influences the likelihood and rate of ulcer healing. - The rationale for interventions should be

CARE PROCESS STEP	EXPECTATIONS	RATIONALE
	- Refer to Table 9, AMDA Pressure Ulcer Therapy Companion CPG (attached)	consistent with currently accepted practices, or the staff and practitioner should be able to explain why they deviated from those approaches.
11. Did the staff address factors related to the development or healing of a pressure ulcer?	<ul style="list-style-type: none"> - Staff should address wound-related factors such as pain, decreased mobility, dependency for eating, continence, and pressure reduction. In addition, general risk factors such as significant weight loss, acute psychiatric conditions, fluid and electrolyte imbalance, and medication-related anorexia or lethargy should be addressed or an explanation given as to why it was not. - At or near the time that an ulcer developed or was being treated, staff should identify and document factors (for example, underlying medical conditions or functional impairments) that they believe affected their ability to prevent or heal a pressure ulcer. 	<ul style="list-style-type: none"> - Skin condition and integrity relates to the collective function of the whole person. - The presence of conditions or problems that may predispose to developing skin breakdown or inhibit wound healing should not prevent efforts to identify and address other relevant factors. - Although some factors influencing the development or healing of a pressure ulcer may not be treatable, many related factors can be addressed.
<u>Pressure reduction</u> 12. Did the staff use relevant pressure reduction methods in accordance with established principles? 13. Did the staff turn and reposition the resident routinely?	<ul style="list-style-type: none"> - Staff should initiate pressure reduction measures consistent with basic principles; for example, the number of available turning surfaces and the ability of the resident to maintain a position. - For a resident with a pressure ulcer or who is at risk for pressure ulceration, staff should turn and reposition the resident approximately every two hours while in bed and reposition the resident approximately hourly while seated. - If staff believe that a resident's inability or unwillingness to cooperate prevents them from consistently achieving or maintaining an effective change in position or pressure reduction, they should try to address these limitations and document related efforts. 	<ul style="list-style-type: none"> - Pressure reduction is a central element of pressure ulcer prevention and healing. - A consistent effort to reduce pressure on vulnerable or affected areas is desirable, although the optimal frequency of turning and positioning has not been precisely identified. Repositioning decreases the time spent in one position, and pressure-relieving surfaces reduce pressure intensity.
<u>Management of ulcers</u> 14. Did the facility consistently manage specific aspects of care of a resident with a pressure ulcer?	<ul style="list-style-type: none"> - Staff should have procedures or protocols for managing a resident with a pressure ulcer. Their content should be based on generally accepted recommendations relevant to the long-term care population. - Staff should manage each aspect of a pressure ulcer in accordance with those established protocols and practices, or explain the basis for significant deviations. - Staff should at least try to maintain stable body weight, or indicate why this is not feasible. In patients who are substantially overweight, 	<ul style="list-style-type: none"> - A consistent approach to wound care should produce more desirable outcomes. - While various legitimate options exist for most aspects of wound care, some approaches are not recommended, based on evidence. - Other than basic caloric support to try to maintain stable weight and a simple

CARE PROCESS STEP	EXPECTATIONS	RATIONALE
	<p>and in whom weight loss is desirable, staff should document this as a goal of care and should attempt to provide adequate protein intake to allow healing.</p> <p>- Refer to: Table 6, AMDA Pressure Ulcer Therapy Comp. (attached) <u>ACOVE</u> Quality Indicators for Prevention and Management of Pressure Ulcers in Vulnerable Adults http://www.acponline.org/sci-policy/acove/</p>	multivitamin, additional nutritional interventions are of questionable benefit.
MONITORING		
15. Did the staff monitor the evolution of existing pressure ulcers?	<p>- Staff should assess an existing pressure ulcer approximately weekly, relating the follow-up to the extent of healing, development of complications, and other relevant factors.</p> <p>- Staff should describe pressure ulcers consistent with the initial evaluation, and compare observations over time.</p>	<p>- Consistent review and description helps identify whether a wound is healing and factors that may inhibit its progress.</p> <p>- Complications may (but do not necessarily) require a change in management.</p> <p>- The optional PUSH tool is a widely used, standardized instrument that may be used for tracking pressure ulcer healing. Refer to Appendix 3.</p>
16. Did the staff adjust interventions based on the wound's evolution, underlying causes, medical complications, the resident's overall condition and prognosis, and other related factors?	<p>- Staff should explain why they chose to change, maintain, or stop various interventions, based on the facility's procedures or protocols and on resident-specific factors such as pressure ulcer characteristics, complications, and risk factors.</p>	<p>- Reasons for maintaining, changing, or stopping interventions should relate to a resident's pressure ulcer characteristics, the resident's overall condition, and the advance care directive or input from the resident or his/her decision maker.</p>
<p><u>Review of non-healing wounds</u></p> <p>17. In residents with non-healing or progressively deteriorating wounds, did the staff assess for factors that might impede healing, and either adjust interventions accordingly or explain why the current interventions continued to be appropriate?</p>	<p>- Staff and physician should consider medical or mechanical factors that could affect healing including, the possible need for more aggressive debridement, additional pressure reduction, different approaches to pressure reduction, the presence of cellulitis or osteomyelitis and clinically important medical or neuropsychiatric conditions.</p>	<p>- Factors that may inhibit healing should be addressed unless there are clinical reasons why they could not be.</p> <p>- Some factors influencing the healing of a pressure ulcer may be treatable, while others may not be.</p>

Document Checklist: For Pressure Ulcer Prevention and Management
February 24, 2003

Resident: _____

Date: _____

PRESSURE ULCER: ASSESSMENT/PROBLEM RECOGNITION			
May relate to F Tags: F272, F314	Yes	No	NA
1. Did the staff inspect and document the resident's skin condition upon admission?			
2. Did the staff evaluate the resident's skin condition periodically and identify changes?			
<u>Risk Review</u>			
3. Initially and periodically, did the staff identify factors that can influence the risk of developing or healing a pressure ulcer?			
4. Did the staff inspect the resident's skin condition when he/she acquired a new risk factor for developing a pressure ulcer?			
<u>Complications</u>			
5. Did the staff consider complications related to an existing pressure ulcer?			
<u>Description of existing pressure ulcers</u>			
6. Did the staff describe the characteristics of existing ulcers?			
PRESSURE ULCER: DIAGNOSIS/CAUSE IDENTIFICATION			
May relate to F Tag: F314			
<u>Categorization</u>			
7. Did the facility provide evidence to conclude that an ulcer was not pressure-related?			
8. Did the facility consider care-related process problems that may influence or contribute to the development or healing of a pressure ulcer?			
PRESSURE ULCER: TREATMENT/PROBLEM MANAGEMENT			
May relate to F Tags: F279, F314			
9. Did the staff consistently implement the interventions identified in physician orders and the care plan?			
10. Were the facility's interventions consistent with the resident's needs, risk factors, related conditions, goals, values and wishes?			
11. Did the staff address factors related to the development or healing of a pressure ulcer?			
<u>Pressure reduction</u>			
12. Did the staff use relevant pressure reduction methods in accordance with established principles?			
13. Did the staff turn and reposition the resident routinely in accordance with established techniques?			
<u>Management of Ulcers</u>			
14. Did the facility consistently manage specific aspects of care of a resident with a pressure ulcer?			

PRESSURE ULCER: MONITORING May relate to F Tag: F314			
15. Did the staff monitor the evolution of existing pressure ulcers?			
16. Did the staff adjust interventions based on the wound's evolution, underlying causes, medical complications, the resident's overall condition and prognosis, and other related factors?			
<u>Review of non-healing wounds</u> 17. In residents with non-healing or progressively deteriorating wounds, did the staff assess for factors that might impede healing, and either adjust interventions accordingly or explain why the current interventions continued to be appropriate?			

Signature of Person(s) completing the form :

Signature: _____

Date: _____

Signature: _____

Date: _____

Table 1**Major Risk Factors for Developing Pressure Ulcers****Alterations in sensation or responses to discomfort**

- Degenerative neurologic disease
- Cerebrovascular disease
- Central nervous system (CNS) injury
- Depression
- Drugs that adversely affect alertness

Alterations in mobility

- Neurologic disease/injury
- Fractures
- Pain
- Restraints

Significant changes in weight ($\geq 5\%$ in 30 days or $\geq 10\%$ in the previous 180 days)

- Protein-calorie undernutrition
- Edema

Incontinence

- Bowel and bladder

Table 2**Comorbid Conditions that May Affect Healing**

- Malnutrition and dehydration
- Diabetes mellitus
- End-stage renal disease
- Thyroid disease
- Congestive heart failure
- Peripheral vascular disease
- Vasculitis and other collagen vascular disorders
- Immune deficiency states
- Malignancies
- Chronic obstructive pulmonary disease
- Depression and psychosis
- Drugs that affect healing
- Contractures at major joints

Table 3**Pressure Ulcer Classifications**

Stage 1: Non-blanchable erythema of intact skin, or discoloration, edema, induration, and warmth over a bony prominence among patients with darker skin; the heralding lesion of skin ulceration.

Stage 2: Partial thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion, blister or shallow crater.

Stage 3: Full thickness skin loss involving damage to, or necrosis of, subcutaneous tissues that may extend down to, but not through fascia. The ulcer presents clinically as a deep crater with or without undermining of adjacent tissue.

Stage 4: Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures (e.g., tendon, joint capsule). Undermining and sinus tracts also may be associated with Stage 4 pressure ulcers.

Table 5
Preventive Measures

- Maintain personal hygiene
- Try to assure adequate nutrition and hydration
- Evaluate and manage urinary and fecal incontinence
- Position to alleviate pressure over bony prominences and shearing forces over the heels and elbows, base of head, and ears.
- Try to reposition every two hours when in bed and every hour when in a chair; if alert and capable, the patient should be taught to shift his or her weight every 15 minutes while in a chair.
- Use appropriate positioning devices and foam padding; do not use donut-shaped devices.
- Try and avoid placing the patient on his or her trochanters or directly on the wound.
- Maintain the lowest head elevation possible.
- Use lifting devices such as draw sheets or a trapeze.
- Try to prevent contractures.
- Do not massage reddened areas over bony prominences.

Table 9
Examples of Mitigating Factors Related to a Facility's Efforts to Treat a Pressure Ulcer

Patient-Related

- Patient is not a good candidate for wound healing or has a terminal or end-stage condition.
- Patient cannot or will not cooperate with a significant part of the treatment plan.
- Patient has significantly comorbidities that are affecting the overall prognosis or the wound healing.
- Patient is currently medically unstable.
- Patient has had multiple episodes of acute illness, with or without hospitalization, in the past 6 months.
- Patient has evidence of undernutrition or weight loss upon admission to the facility, or after admission despite efforts to try to address it.
- Patient previously had a pressure ulcer in the same or a similar location.
- Patient has requested significant limitations in medical interventions, such as declining tube feeding despite weight loss or undernutrition.

Process-Related

- Provider has properly performed processes of assessment, problem identification, cause identification, management, monitoring, identification of complications, etc.
- Provider has appropriately tried to address each aspect of the wound.
- Documentation reflects performance of relevant processes and explains patient-related factors complicating treatment and wound healing.
- Staff follows related policies and performs procedures correctly.
- Facility has trained and educated staff in related knowledge and skills.
- Facility periodically oversees actual task performance by staff.
- Facility addresses inadequate or inappropriate task performance.

Table 6
Categories of Products and Devices Commonly Used in Wound Care

Category	Description	Characteristics	Concerns	Applications
Gauze, dry or wet	<ul style="list-style-type: none"> Woven natural cotton fibers; non-woven rayon and polyester blends; available in pads and rolls, sterile and non-sterile 	<ul style="list-style-type: none"> May be dampened with saline or water Inexpensive Facilitates wet-to-dry debridement Non-adherent when used as wet-to-moist dressing Minimally to moderately absorbent 	<ul style="list-style-type: none"> Wet-to-dry debridement painful, may damage healthy tissue Woven variety is abrasive May dehydrate wound Requires frequent changes Packing may harden, causing further pressure injury 	<p><i>As primary dressing:</i></p> <ul style="list-style-type: none"> Deep wounds; can be packed into undermined or tunneling areas <p><i>As secondary dressing:</i></p> <ul style="list-style-type: none"> Can maintain a moist environment if kept moist, or under an occlusive secondary dressing Can be used in large, necrotic wounds or presence of soft tissue infection
Impregnated gauze pads	<ul style="list-style-type: none"> Woven or non-woven materials in which substances such as saline, water, iodinated agents, petrolatum, zinc compounds, sodium chloride, chlorhexadine gluconate, bismuth tri-bromophenate, or other materials have been incorporated 	<ul style="list-style-type: none"> Inexpensive Non-adherent with specific product formulations 	<ul style="list-style-type: none"> Some impregnated material may be toxic to living tissue 	<ul style="list-style-type: none"> See above
Transparent films	<ul style="list-style-type: none"> Adhesive, transparent polyurethane membrane 	<ul style="list-style-type: none"> Occlusive and waterproof Retains moisture Impermeable to bacteria and contamination Promotes autolysis, moist wound healing and epithelialization Wound is visible Non-absorbent May be changed every 5-7 days 	<ul style="list-style-type: none"> Should not be used with moderate to heavy exudate Risk of macerating surrounding skin 	<p><i>As primary dressing:</i></p> <ul style="list-style-type: none"> Open partial-thickness wounds, minimal exudate, clean wound base or intact skin (Stage 1) <p><i>As secondary dressing:</i></p> <ul style="list-style-type: none"> May be used as secondary dressing over other more absorptive products
Hydrogels	<ul style="list-style-type: none"> Glycerin- or water-based gel, amorphous or supported by fabric Available as amorphous gels, wafers, sheets and impregnated gauze. Available with or without adhesive borders 	<ul style="list-style-type: none"> Non-adherent Fills dead space Semi-occlusive Promotes autolysis, moist wound healing Easy to apply and remove Minimally absorbent Retains moisture and rehydrates wound 	<ul style="list-style-type: none"> Risk of macerating surrounding tissue Secondary dressing required Requires daily application (except when applied with adhesive borders) Dries out easily Risk of candidiasis 	<p><i>As primary dressing:</i></p> <ul style="list-style-type: none"> Full-thickness wounds with clean base and minimal or no exudate Partial-thickness wounds with adherent necrosis or slough with minimal or no exudate

Hydrocolloids	<ul style="list-style-type: none"> Adhesive wafers composed of gelatin, pectin and carboxymethyl-cellulose. Available in wafers, sheets, paste or granules. 	<ul style="list-style-type: none"> Occlusive and water-proof Retains moisture Impermeable to bacteria and contamination Promotes autolysis and moist wound healing Moderately absorbent Easy to apply 	<ul style="list-style-type: none"> Should not be used with heavy exudates Should not be used when soft tissue infection is present May be difficult to remove; may have significant order on removal, due to anaerobic colonization 	<p><i>As primary dressing:</i></p> <ul style="list-style-type: none"> Intact skin or a clean wound base with light to moderate exudates Partial-thickness wounds with adherent necrosis or slough <p><i>As secondary dressing:</i></p> <ul style="list-style-type: none"> Over wound fillers in deep wounds without undermining or tunneling
Alginates	<ul style="list-style-type: none"> Non-woven fibers containing calcium sodium salts of alginic acid derived from seaweed Available in pads or ropes 	<ul style="list-style-type: none"> Non-adherent Highly absorbent Promotes autolysis Can be used on infected wounds 	<ul style="list-style-type: none"> Requires a secondary dressing Should not be used on dry or low-exudate wounds; may desiccate wound Requires daily application 	<p><i>As primary dressing:</i></p> <ul style="list-style-type: none"> Full-thickness wound with moderate to heavy exudate Can be packed into areas of tunneling or undermining
Foams	<ul style="list-style-type: none"> Hydrophilic polyurethane foam Available in wafers, sheets, pillows with film covering 	<ul style="list-style-type: none"> Non-adherent Easy to apply and remove Highly absorbent 	<ul style="list-style-type: none"> Requires a secondary dressing (unless combined with an adhesive border) 	<p><i>As primary dressing:</i></p> <ul style="list-style-type: none"> Full-thickness wound with moderate to heavy exudate May be used as "intermediate" dressing for absorbing excessive exudate over packing material
Wound fillers	<ul style="list-style-type: none"> Copolymer starch, dextranomer beads or hydrocolloid paste that swells on contact with wound fluid to form a gel Available in pastes, beads, powders, gels and fiber layers 	<ul style="list-style-type: none"> Non-adherent Easy to apply and remove Moderately to highly absorbent 	<ul style="list-style-type: none"> Usually requires a secondary dressing 	<p><i>As a primary dressing:</i></p> <ul style="list-style-type: none"> Full-thickness wounds with moderate to heavy exudate to fill dead space Fiber layers can be packed into areas of tunneling and undermining
Composite dressings	<ul style="list-style-type: none"> Combines various dressing categories in one product Varies among manufacturers 	Provides multiple functions (such as bacterial barrier, absorptive layer, adhesive border, etc.)	<ul style="list-style-type: none"> Use may be confusing 	<ul style="list-style-type: none"> Depends on components

Appendix 1

Checklist for Managing Wound Care, Based on Assessment and Problem Identification

Assessment Element	Finding(s)	Action(s) Taken
	<i>Check box to indicate finding is present</i>	<i>If finding is present, check boxes below to indicate action completed</i>
General Factors		
Ethical considerations	<input type="checkbox"/> Advance directives or other care instructions limit scope, frequency, or intensity of care to be provided	<input type="checkbox"/> Document limitations and adjust care plan accordingly
General medical stability	<input type="checkbox"/> Individual is not stable medically	<input type="checkbox"/> Assess for cause(s) of instability, including systemic infection <input type="checkbox"/> Document when medical instability (multi-systems failure, multiple active chronic conditions, serious acute illness, medical complications, progressive decline, terminal illness) may influence wound development or complicate wound healing <input type="checkbox"/> Indicate short- and longer-term prognosis for improvement in medical status
	<input type="checkbox"/> Signs and symptoms of systemic infection present	<input type="checkbox"/> Initiate appropriate treatment if consistent with care goals and patient wishes
Comorbidities	<input type="checkbox"/> Active comorbid conditions (CHF, diabetes, etc.) are affecting prognosis <input type="checkbox"/> Active comorbid conditions are affecting wound healing	<input type="checkbox"/> Manage comorbid conditions to extent possible, based on patient's treatment goals and wishes <input type="checkbox"/> Document when comorbid conditions may be complicating wound healing <input type="checkbox"/> Document when comorbid conditions may be affecting patient's short-term or long-term prognosis
	<input type="checkbox"/> Major comorbid conditions are affecting both wound healing and patient's general prognosis	<input type="checkbox"/> Reassess care instructions and overall treatment goals, and consider possible end-of-life decisions
Nutrition and hydration status	<input type="checkbox"/> No significant observable or lab evidence of undernutrition <input type="checkbox"/> No recent weight-loss	<input type="checkbox"/> Review intake <input type="checkbox"/> Remove all non-essential dietary restrictions and encourage oral intake, where feasible
	<input type="checkbox"/> Oral intake has declined recently <input type="checkbox"/> Individual has recently started to lose weight <input type="checkbox"/> Individual is mildly undernourished	<i>Level 1:</i> <input type="checkbox"/> Review advance directives or obtain relevant care instructions <input type="checkbox"/> Do calorie count <input type="checkbox"/> Assess reasons for reduced intake <input type="checkbox"/> Remove all non-essential dietary restrictions and encourage oral intake, as appropriate <input type="checkbox"/> Review drug regimen for medications that may be affecting appetite or causing weight loss

Nutrition and hydration status (<i>cont.</i>)		<i>Level 1 (cont.):</i> <input type="checkbox"/> Review for physical causes of weight loss (depression, occult infection, COPD, thyroid dysfunction, CHF) <input type="checkbox"/> Document that nutrition factors are influencing wound healing
	<input type="checkbox"/> Patient continues to lose weight despite above interventions or has had a more prolonged weight loss <input type="checkbox"/> Individual is moderately undernourished	<i>Level 2:</i> <input type="checkbox"/> Provide nutritional supplementation with medication pass or inbetween meals based on the individual's intake and other factors affecting nutritional status (such as concurrent infection)
	<input type="checkbox"/> Individual is severely undernourished or underweight <input type="checkbox"/> Individual continues to lose weight despite prior efforts at expanding intake/supplementation <input type="checkbox"/> Individual has been losing weight over time	<i>Level 3:</i> <input type="checkbox"/> Based on calorie count and initial efforts to expand intake, consider increasing amount of supplementation, alternate means of providing nutrition (such as tube feeding), or discuss end-of-life choices <input type="checkbox"/> Document when weight loss or failure to gain weight is medically unavoidable
	<input type="checkbox"/> Evidence of change in hydration status	<input type="checkbox"/> Review medications, illnesses, conditions and other factors influencing hydration status <input type="checkbox"/> Provide additional hydration based on scope of fluid deficit, goals and prognosis
Functional status	<input type="checkbox"/> Limitations in functional status, mobility, seating and ability to relieve pressure	<input type="checkbox"/> Appropriate consultations and interventions to improve functional status, where feasible
Evidence of infection	<input type="checkbox"/> Signs and symptoms of soft-tissue infection present	<input type="checkbox"/> Initiate appropriate treatment as indicated
	<input type="checkbox"/> Factors indicating infection or increasing infection risk (sinus tract, fistula, tunneling, or undermining) observed or suspected	<input type="checkbox"/> Assess for possible surgical debridement
	<input type="checkbox"/> Evidence of significant colonization present	<input type="checkbox"/> Review and possibly expand wound debriding and cleansing methods
Pain	<input type="checkbox"/> Pain possibly related to wound	<input type="checkbox"/> Assess for local causes <input type="checkbox"/> Assess for other/additional causes of pain <input type="checkbox"/> Treat pain aggressively with adequate analgesia <input type="checkbox"/> Consider changing treatments that may be contributing to pain
Wound Management		
General		<input type="checkbox"/> Document appearance of wound bed and edges <input type="checkbox"/> Document type of ulcer, wound dimensions, and stage <input type="checkbox"/> Document amount of exudates
Location		<input type="checkbox"/> Document location of all ulcers <input type="checkbox"/> Identify and address problems and complications related to wound location, including urinary or fecal contamination

Necrotic (dead) tissue	<input type="checkbox"/> Necrotic tissue and slough present	<input type="checkbox"/> Document presence of necrotic tissue and slough <input type="checkbox"/> Select a debridement method
Pressure reduction	<input type="checkbox"/> Patient cannot maintain pressure reduction unaided	<input type="checkbox"/> Select and institute appropriate pressure reduction measures
Covering and protecting wound	<input type="checkbox"/> Open wound is present <input type="checkbox"/> Intact skin requires significant protection	<input type="checkbox"/> Select appropriate dressings and bandaging
Monitoring progress of wound healing	<input type="checkbox"/> Evidence of significant wound healing after 2 weeks treatment or revision of previous treatment	<input type="checkbox"/> Decide and document whether current treatment should continue or be modified
	<input type="checkbox"/> Little or no evidence of significant wound healing	<input type="checkbox"/> Assess for medical or mechanical factors that are inhibiting healing <input type="checkbox"/> Review for presence of underlying infection or cellulitis <input type="checkbox"/> Review possible need for more aggressive debridement <input type="checkbox"/> Review possible need for altered/additional nutritional interventions <input type="checkbox"/> Decide and document whether current treatment should continue or be modified <input type="checkbox"/> Consider adding or changing pressure reduction devices as indicated <input type="checkbox"/> Consider topical antibacterial therapies or adjunctive treatments
Protecting Intact Skin		
Intact skin	<input type="checkbox"/> Skin around ulcer is dry and intact <input type="checkbox"/> Skin around ulcer is moist but intact	<input type="checkbox"/> Control wound exudate; identify and treat its source <input type="checkbox"/> Consider using a skin protectant
	<input type="checkbox"/> Skin surrounding ulcer is moist and breaking down (macerated)	<input type="checkbox"/> Review for cause(s) such as urinary incontinence or possible infection or necrotic tissue producing copious exudate <input type="checkbox"/> Review possible role of current wound treatments in causing or contributing to skin breakdown <input type="checkbox"/> Use absorbent dressing as indicated
	<input type="checkbox"/> Skin in general is very dry	<input type="checkbox"/> Apply moisturizer in moderation, as indicated
General skin fragility	<input type="checkbox"/> Skin in general is thin, fragile, easily bruised	<input type="checkbox"/> Document that skin abnormality may predispose to skin breakdown <input type="checkbox"/> Assess for any additional measures needed to try to protect skin
Psychological Factors		
Lifestyle/habits	<input type="checkbox"/> Individual has lifestyle or habits that are affecting wound healing	<input type="checkbox"/> Document relevant issues and attempt to advise patient or adjust care plan accordingly
Ability to cooperate	<input type="checkbox"/> Patient is unwilling or unable to cooperate to some extent with treatment plan	<input type="checkbox"/> Document specific issues and attempt alternative approaches, if feasible

Braden Risk Assessment Scale

NOTE: Bed and chairbound individuals or those with impaired ability to reposition should be assessed upon admission for their risk of developing pressure ulcers. Patients with established pressure ulcers should be reassessed periodically.

Patient Name: _____ Room Number: _____ Date: _____

Sensory Perception	1. Completely Limited	2. Very Limited	3. Slightly Limited	4. No Impairment	Indicate Appropriate Numbers Below
Ability to respond meaningfully to pressure-related discomfort	Unresponsive (does not moan, flinch or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body surface.	Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body.	Responds to verbal commands, but cannot always communicate discomfort or need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.	
Moisture	1. Constantly Moist	2. Very Moist	3. Occasionally Moist	4. Rarely Moist	
Degree to which skin is exposed to moisture	Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	Skin is often, but not always, moist. Linen must be changed at least once a shift.	Skin is occasionally moist, requiring an extra linen change approximately once a day.	Skin is usually dry. Linen only requires changing at routine intervals.	
Activity	1. Bedfast	2. Chairfast	3. Walks Occasionally	4. Walks Frequently	
Degree of physical activity	Confined to bed.	Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.	Walks outside the room at least twice a day and inside room at least once every 2 hours during waking hours.	
Mobility	1. Completely Immobile	2. Very Limited	3. Slightly Limited	4. No Limitations	
Ability to change and control body position	Does not make even slight changes in body or extremity position without assistance.	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.	Makes frequent though slight changes in body or extremity position independently.	Makes major and frequent changes in position without assistance.	
Nutrition	1. Very Poor	2. Probably Inadequate	3. Adequate	4. Excellent	
Usual food intake pattern	Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement. OR is NPO and/or maintained on clear liquids or I.V.'s for more than 5 days.	Rarely eats a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding.	Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered. OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs.	Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.	
Friction and Shear	1. Problem	2. Potential Problem	3. No Apparent Problem		
	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation lead to almost constant friction.	Moves feebly or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair restraints, or other devices. Maintains relatively good position in chair or bed most of the time, but occasionally slides down.	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair at all times.		

NOTE: Patients with a total score of 16 or less are considered to be at risk of developing pressure ulcers. (15 or 16 = low risk; 13 or 14 = moderate risk; 12 or less = high risk)

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Total Score: _____

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<p>AT RISK (15-18)*</p> <p>FREQUENT TURNING MAXIMAL REMOBILIZATION PROTECT HEELS MANAGE MOISTURE, NUTRITION AND FRICTION AND SHEAR PRESSURE-REDUCTION SUPPORT SURFACE IF BED- OR CHAIR-BOUND</p> <p>* If other major risk factors are present (advanced age, fever, poor dietary intake of protein, diastolic pressure below 60, hemodynamic instability) advance to next level of risk</p>	<p>MANAGE MOISTURE</p> <p>USE COMMERCIAL MOISTURE BARRIER USE ABSORBANT PADS OR DIAPERS THAT WICK & HOLD MOISTURE ADDRESS CAUSE IF POSSIBLE OFFER BEDPAN/URINAL AND GLASS OF WATER IN CONJUNCTION WITH TURNING SCHEDULES</p>
<p>MODERATE RISK (13-14)*</p> <p>TURNING SCHEDULE USE FOAM WEDGES FOR 30E LATERAL POSITIONING PRESSURE-REDUCTION SUPPORT SURFACE MAXIMAL REMOBILIZATION PROTECT HEELS MANAGE MOISTURE, NUTRITION AND FRICTION AND SHEAR</p> <p>* If other major risk factors present, advance to next level of risk</p>	<p>MANAGE NUTRITION</p> <p>INCREASE PROTEIN INTAKE INCREASE CALORIE INTAKE TO SPARE PROTEINS. SUPPLEMENT WITH MULTI-VITAMIN (SHOULD HAVE VIT A, C & E) ACT QUICKLY TO ALLEVIATE DEFICITS CONSULT DIETITIAN</p>
<p>HIGH RISK (10-12)</p> <p>INCREASE FREQUENCY OF TURNING SUPPLEMENT WITH SMALL SHIFTS PRESSURE REDUCTION SUPPORT SURFACE USE FOAM WEDGES FOR 30E LATERAL POSITIONING MAXIMAL REMOBILIZATION PROTECT HEELS MANAGE MOISTURE, NUTRITION AND FRICTION AND SHEAR</p>	<p>MANAGE FRICTION & SHEAR</p> <p>ELEVATE HOB NO MORE THAN 30E USE TRAPEZE WHEN INDICATED USE LIFT SHEET TO MOVE PATIENT PROTECT ELBOWS & HEELS IF BEING EXPOSED TO FRICTION</p>
<p>VERY HIGH RISK (9 or below)</p> <p>ALL OF THE ABOVE + USE PRESSURE-RELIEVING SURFACE IF PATIENT HAS INTRACTABLE PAIN OR SEVERE PAIN EXACERBATED BY TURNING OR ADDITIONAL RISK FACTORS</p> <p>*low air loss beds do not substitute for turning schedules</p>	<p>OTHER GENERAL CARE ISSUES</p> <p>NO MASSAGE OF REDDENED BONY PROMINENCES NO DO-NUT TYPE DEVICES MAINTAIN GOOD HYDRATION AVOID DRYING THE SKIN</p>

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PUSH Tool 3.0

Patient Name: _____ Patient ID#: _____

Ulcer Location: _____ Date: _____

DIRECTIONS:

Observe and measure the pressure ulcer. Categorize the ulcer with respect to surface area, exudate, and type of wound tissue. Record a sub-score for each of these ulcer characteristics. Add the sub-scores to obtain the total score. A comparison of total scores measured over time provides an indication of the improvement or deterioration in pressure ulcer healing.

Length	0 0 cm ²	1 <0.3 cm ²	2 0.3-0.6 cm ²	3 0.7-1.0 cm ²	4 1.1-2.0 cm ²	5 2.1-3.0 cm ²	
x Width		6 3.1-4.0 cm ²	7 4.1-8.0 cm ²	8 8.1-12.0 cm ²	9 12.1-24.0 cm ²	10 >24.0 cm ²	Sub-score
Exudate Amount	0 None	1 Light	2 Moderate	3 Heavy			Sub-score
Tissue Type	0 Closed	1 Epithelial Tissue	2 Granulation Tissue	3 Slough	4 Necrotic Tissue		Sub-score
							Total Score

Length x Width: Measure the greatest length (head to toe) and the greatest width (side to side) using a centimeter ruler. Multiply these two measurements (length x width) to obtain an estimate of surface area in square centimeters (cm²). Caveat: Do not guess! Always use a centimeter ruler and always use the same method each time the ulcer is measured.

Exudate Amount: Estimate the amount of exudate (drainage) present after removal of the dressing and before applying any topical agent to the ulcer. Estimate the exudate (drainage) as none, light, moderate, or heavy.

Tissue Type: This refers to the types of tissue that are present in the wound (ulcer) bed. Score as a "4" if there is any necrotic tissue present. Score as a "3" if there is any amount of slough present and necrotic tissue is absent. Score as a "2" if the wound is clean and contains granulation tissue. A superficial wound that is reepithelializing is scored as a "1". When the wound is closed, score as a "0".

4 - Necrotic Tissue (Eschar): black, brown, or tan tissue that adheres firmly to the wound bed or ulcer edges and may be either firmer or softer than surrounding skin.

3 - Slough: yellow or white tissue that adheres to the ulcer bed in strings or thick clumps, or is mucinous.

2 - Granulation Tissue: pink or beefy red tissue with a shiny, moist, granular appearance.

1 - Epithelial Tissue: for superficial ulcers, new pink or shiny tissue (skin) that grows in

from the edges or as islands on the ulcer surface.

0 - Closed/Resurfaced: the wound is completely covered with epithelium (new skin).

Version 3.0: 9/15/98

©National Pressure Ulcer Advisory Panel

PRESSURE ULCER HEALING CHART
(To Monitor Trends in PUSH Scores Over Time)
(use a separate page for each pressure ulcer)

Patient Name: _____ Patient ID#: _____

Ulcer Location: _____ Date: _____

Directions: Observe and measure pressure ulcers at regular intervals using the PUSH Tool. Date and record PUSH Sub-scale and Total Scores on the Pressure Ulcer Healing Record below.

PRESSURE ULCER HEALING RECORD												
DATE												
Length x Width												
Exudate Amount												
Tissue Type												
Total Score												

Graph the PUSH Total Score on the Pressure Ulcer Healing Graph below.

PUSH Total Score		PRESSURE ULCER HEALING GRAPH											
17													
16													
15													
14													
13													
12													
11													
10													
9													
8													
7													
6													
5													
4													
3													
2													
1													
Healed 0													
DATE													

PUSH Tool Version 3.0: 9/15/98

Instructions for Using the PUSH Tool

To use the PUSH Tool, the pressure ulcer is assessed and scored on the three elements in the tool:

- Length x Width --> scored from 0 to 10
- Exudate Amount ---> scored from 0 (none) to 3 (heavy)
- Tissue Type ---> scored from 0 (closed) to 4 (necrotic tissue)

In order to insure consistency in applying the tool to monitor wound healing, definitions for each element are supplied at the bottom of the tool.

Step 1: Using the definition for length x width, a centimeter ruler measurement is made of the greatest head to toe diameter. A second measurement is made of the greatest

width (left to right). Multiple these two measurements to get square centimeters and then select the corresponding category for size on the scale and record the score.

Step 2: Estimate the amount of exudate after removal of the dressing and before applying any topical agents. Select the corresponding category for amount & record the score.

Step 3: Identify the type of tissue. **Note:** if there is ANY necrotic tissue, it is scored a 4. Or, if there is ANY slough, it is scored a 3, even though most of the wound is covered with granulation tissue.

Step 4: Sum the scores on the three elements of the tool to derive a total PUSH Score.

Step 5: Transfer the total score to the Pressure Ulcer Healing Graph. Changes in the score over time provide an indication of the changing status of the ulcer. If the score goes down, the wound is healing. If it gets larger, the wound is deteriorating.